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CANADA'S NATIONAL GRAIN ROUTE

CANADA in 1917 exported 189,643,000 bushels of wheat, and 7,425,000 barrels of flour. All this wheat was grown in the provinces of Manitoba, Saskatchewan and Alberta. So was nearly all the wheat from which the exports of flour were milled. The wheat exported and the larger part of the wheat ground at mills east of the Great Lakes went through the terminal elevators at Fort William and Port Arthur, and was shipped from these ports over the national grain route to tidewater ports in Canada or in the United States, or to flour mills in the provinces of Ontario and Quebec.

The prosperity of Canada, in particular that of the prairie provinces and the provinces of Ontario and Quebec, is in normal years largely dependent on the western grain trade. All these five provinces are to a great extent dependent on the grain trade as it flourishes at Fort William and Port Arthur, at the transfer ports of the lower lakes, and at the tidewater ports of Montreal, Quebec, Halifax and St. John. It is a trade that had its beginnings no longer ago than 1883; and it is only within the last ten years that all the tidewater ports of Eastern Canada were adequately equipped to handle it. From 1883 to 1896 Montreal and Quebec were the only Canadian ports that had any part in the oversea shipment of grain from the western provinces. In 1896 St. John became a grain port; and in that year, for the first time in the history of the trade, grain was shipped in the winter months over the Canadian Pacific Railway from Fort William to what the people of New Brunswick like to regard as the Liverpool of the Maritime Provinces.

Halifax in 1900 made a bid for the grain business. An elevator of half a million bushels capacity, built by the Dominion government as part of the port equipment of the Intercolonial Railway, then went into commission; and this elevator has been in service as a public utility, operated by the government, for the last seventeen or eighteen years. But the distance from Montreal to Halifax is 836 miles. Montreal is 992 miles by rail from the head of the lakes; and with distance and the heavy grades of the Intercolonial against it, Halifax has not taken rank among the important grain ports on the Atlantic seaboard. With its obvious potentialities for oversea trade, Halifax had not up to 1918 succeeded in obtaining a place on the great chain of grain ports that extends from St. John, New Brunswick, to Galveston, Texas.

A trickle from the ever-increasing stream of grain from Port Arthur and Fort William that has been pouring over the national grain route since 1883, always found its way to Quebec, which until 1890 outranked Montreal in importance as a port. It went there before Quebec had its modern elevator equipment, because despite the deepening and widening of the ship channel, which has been going on since 1844, there were always owners of large mail and passenger steamers who preferred to load and unload at Quebec rather than to send their vessels up and down the 160 miles of ship channel of the St. Lawrence that connects Quebec with Montreal. Except for this thin stream of grain that has gone, and is still going, to Quebec, until 1896 all the transatlantic shipments were from Montreal, or from American ports; and from December to May, during the months in which the navigation of the St. Lawrence is closed by ice, not a bushel of grain was shipped to the United Kingdom from a Canadian port.

1. The Early Years of the Western Grain Trade

Manitoba no. 1 hard—the wheat that gave the province its world-wide fame—began to attract attention in 1876. There were then not more than 8,000 grain growers in the province of Manitoba. There was no railway to the head of the lakes. Winnipeg, although then as now the capital, was only a village; and the easiest way to Ontario and Eastern Canada was by rail from St. Paul. Statistics of grain production in Manitoba began to be collected by the provincial government in 1876. For that year the production of wheat was 480,000 bushels; and there were then ten small flour mills in the province. Two of them were in Winnipeg. This was the year of the centennial exposition at Philadelphia, and at that exposition there was a collection of samples of grain grown in Manitoba.

In the autumn of this year also, there was the first shipment of Manitoba wheat to Toronto. It was sold as seed, and 850 bushels were quickly distributed; for Ontario from 1793 until as late as 1884 was the one grain-exporting province in British North America. In 1876 Manitoba hard wheat had been declared by millers to be the best for milling purposes, and Ontario grain growers were eager to try it in their own province. There were other and larger shipments to Toronto by way of St. Paul between 1876 and 1882—shipments to Ontario millers, who then as now had a large export trade with the United Kingdom, and who also exported flour to the Maritime Provinces, to the United States and to Newfoundland.

In the decade which preceded the completion of the Canadian Pacific Railway to a point as far west as Winnipeg, there were years in which the exports of Ontario wheat to Great Britain were as high as 5,000,000 bushels, and in the literature of the immigration propaganda of these years—1873 to 1883—much emphasis was laid on the fame of Ontario as a wheat growing and wheat exporting province. In Canada there was no province to dispute the pre-eminence of Ontario until 1884, when the first shipment of Manitoba wheat was made to Great Britain. The first shipments of grain over the Canadian Pacific Railway were made in 1883. They were from Winnipeg to Port Arthur; thence to Toronto over the lake and canal sections of what is now the national grain route; and Toronto continued to be a grain port, on an American as well as on the Canadian route, until 1887. Toronto at this time was also a grain market. Montreal had had its grain exchange from 1863—from the era of great agricultural prosperity in Ontario and Quebec which resulted from the reciprocity treaty of 1854–1866 with the United States. The grain exchange at Toronto was established in 1872. It obtained its charter from parliament at Ottawa before Toronto took its place on the old grain route from Minnesota and Dakota through Chicago to Collingwood, Ontario, thence to Toronto by rail, and from Toronto by lake and canal to Oswego and Ogdensburg in New York; or to

Montreal, from which port there have been comparatively large shipments of wheat and Indian corn from the western states ever since the days of the old Elgin-Marcy treaty of 1854.

In the years of the initial development of the national grain route it seemed as though Toronto might retain its importance as a grain port. After the Canadian Pacific Railway Company built its first elevator at Fort William in 1884, and also a transfer elevator for western Canadian grain at Owen Sound, on Georgian Bay in 1885, it contemplated building an elevator at Toronto, and announced this intention to a meeting of shareholders at Montreal in May 1886. Toronto was also made a grain-inspecting center under the Dominion grain code by order in council passed at Ottawa on August 22, 1885; and the inspector of grain there was by this order directed to make daily reports to the Toronto Board of Trade. But shortly before lake navigation began in 1885 this international transport service was ended by the denunciation by the United States in 1883 of the protocol of June 1875, to the treaty of Washington of 1871, that gave Canadian forwarding companies the privilege of carrying grain from one United States port to another, providing it was carried overland in the Dominion part of the way—the protocol that sanctioned the Chicago-Collingwood-Toronto-Ogdensburg route for grain from Minnesota and Dakota.

Extensions of the C. P. R. in Ontario made after 1884, the development of Owen Sound as a grain port, and low through rates to Montreal from stations in Ontario, all told against grain business at Toronto; and by 1887 Toronto had lost a pre-eminence on the grain route that it had enjoyed for nearly thirty years before grain from Manitoba began to be shipped over the national route to Montreal and Quebec. Toronto is still a grain market for western as well as Ontario grain; but of the forty licensed elevators in the province of Ontario in 1916 not one was in the city of Toronto; and Toronto for more than a quarter of a century has been off the line along which Canadian grain moves to the eastern seaboard.

There were no elevators at the head of the lakes in 1883—not an elevator anywhere in Canada west of Collingwood—and when the pioneer lake grain carrier, the steamer "Erin," a vessel of 400 tons, took on the first cargo at Port Arthur for the national grain route, part of the grain was carried to the steamer in bags, and part of it was wheeled in barrows from the Canadian Pacific Railway sheds to the steamer. The first elevator was built at Port Arthur in the winter of 1883–1884. It was known as King's. It was of 250,000 bushels' capacity—a capacity not equal to that of many of the lake steamers now in the grain trade. It went into service in June 1884. The first consignments of western grain over the C. P. R. in 1883 went to Toronto for flour millers in Ontario; and there were no direct shipments of Manitoba wheat to the United Kingdom until in 1884. The first shipment was consigned to Dunlop Brothers, of Glasgow, by Mr. James Thompson, who has been in the grain business of western Canada since 1882, and who in 1918 was the dean of the grain exchange at Winnipeg. There were 700 bushels of wheat in the consignment, which was of the crop of 1883.

In June 1884, when the pioneer Thompson-Dunlop consignment was on its way to tide-water, the population of the two towns at the head of the lakes—Port Arthur and Fort William—did not exceed 6,000, and the time seemed remote when these two ports would rank next to Chicago among the centers of grain handling on the North American continent. There were then no country or line elevators anywhere in what are now the grain-growing provinces; and the first consignment of grain from Winnipeg to the United Kingdom was carried to Port Arthur in sacks. It went all the way to Montreal over the lake and canal route; for in 1884 there were no transfer ports on the Canadian shores of the lower lakes—no ports at which there were elevators for storing grain during the winter months and transferring it to cars for conveyance to Montreal, Quebec and Portland.

In the year of this first shipment of Manitoba wheat to Great Britain, the Canadian Pacific Railway Company handled nearly 6,500,000 bushels of grain. Most of this business, however, originated on its lines east of the Great Lakes. In these years—1883 and 1884—the western grain crop did not exceed

2,000,000 bushels. It was all Manitoba grain; for it was 1892 before any grain for export was grown in what is now Saskatchewan, today the most important of the grain-growing provinces; and it was 1898 before even a rivulet of grain from what is now Alberta was finding its way into the eastward stream from the prairie country to the head of the lakes.

The first steamer to take grain from an elevator at Port Arthur was the "Acadian." She was loaded at King's when the Manitoba crop of 1884 began to arrive for shipment down the lakes. The second season of shipments by rail from Manitoba —that of 1884—made it obvious that a large business must soon be centered at the head of the lakes. As Port Arthur is nearly a thousand miles from Montreal, there was no idea in those days that grain could be carried all the way by rail to the tide-water ports, and it was 1896 before the first load of grain for winter shipment from St. John was carried over what is colloquially termed the "bridge"—the 600 miles of almost uninhabited wilderness that lie between Port Arthur and North Bay, Ontario. In the early eighties it was taken for granted that all the grain would go east from Fort William and Port Arthur by water during lake navigation season, and that storage at the head of the lakes would be needed for every bushel of grain that would come to hand between December and April.

2. *Elevators at the Head of the Lakes*

The C. P. R. accordingly in 1883–1884 built its first terminal elevator at Fort William. Like the elevators at Chicago and other American lake ports at that time, this first large grain elevator in Canada was of wood, with square bins, instead of the circular bins now in use in most of the newer elevators at the head of the lakes, at Winnipeg, Saskatoon, Moose Jaw, Calgary and the other centers of the grain trade in the country beyond the Great Lakes. The first C. P. R. elevator was of 1,000,000 bushels capacity, and was designed and equipped to admit of the unloading of nine cars at a time. It went into commission early in the grain year of 1884–1885, a year in which 1,500,000 bushels went through this elevator and King's, the older elevator on Thunder Bay. Over 2,000,000 bushels went down the lakes in the following year, 1885–1886; and then came the memorable crop of 1887. In the grain year 1887–1888, 3,876,000 bushels of Manitoba wheat were inspected at Winnipeg, and sent forward to the head of the lakes. This was the first boom year in the western grain trade. From the crop of 1887 is dated the organization of the grain exchange at Winnipeg; the first large shipments direct to London; the building of the first country elevators along the line of the C. P. R.; the first congestion of grain at Fort William and Port Arthur; and the beginning of great activity in the building of terminal elevators at these ports.

The aggregate capacity of the two elevators in commission in 1887—King's at Port Arthur and the C. P. R. elevator at Fort William—was only 1,350,000 bushels, less than the capacity of the three elevators now in use for shipments during the winter months from St. John; and Montreal was then the only Canadian ocean port where there were elevators for handling Manitoba grain. The C. P. R. had installed its first elevator at Place Viger in the winter of 1885. It built a second elevator there in 1886; and when the great crop of 1887 was moved eastward the aggregate capacity of the C. P. R. elevators at Montreal—then the only public elevators at the port—was 1,200,000 bushels. The entire grain crop—wheat, oats and barley—was immense. It greatly exceeded the expectations of the local superintendents of the C. P. R., who, like all railway men in the country between the Great Lakes and the Rocky Mountains, are invariably optimistic on the western grain crop. It also exceeded the expectations of the steamship owners in whose vessels the crop was to go to the lower lake ports in Ontario or to Buffalo; for as early as 1887 part of the stream of grain from Manitoba was finding its way in bond from Buffalo to the Atlantic ports of the United States.

During the grain year 1887–1888 the C. P. R. handled 15,000,000 bushels of wheat, oats and barley, as compared with 10,950,000 in the preceding year. A large part of this business, as in 1885 and 1886, originated in Ontario; and much of the grain from Manitoba figures twice in the grain statistics of the railway company, as is still the case when grain goes by rail to the head of the lakes, thence by water to Georgian Bay ports, and from these ports over the C. P. R. or the Grand Trunk Railway to Montreal, Quebec, Halifax, St. John or Portland. But the increase of 5,000,000 bushels in the wheat handled by the C. P. R. in 1887–1888 was due almost entirely to the unprecedented crop harvested in Manitoba; and at that time, and in fact until 1902, the C. P. R. was the only railway carrying grain from Manitoba to Fort William and Port Arthur.

In the prairie provinces the crop matures between August 15 and September 1. Threshing begins ten days after harvest. Few grain growers have granaries on their homesteads, and much of the grain, as it leaves the threshers, is carried to the country elevators at the nearest railway station. These elevators are of from 25,000 to 40,000 bushels capacity. Grain growers who use them—and nowadays ninety-nine out of a hundred grain growers ship through country elevators—are charged a cent and a half a bushel for the services rendered at the elevator. These services include weighing the grain, elevating it to bins, fifteen days' storage and transfer from bin to railway car.

Most grain growers in normal times are pressed for money at the end of the crop year. Grain is not stored for long at the country elevators. It is shipped for inspection to Calgary, Moose Jaw, or Winnipeg, as soon as cars are available; and from Winnipeg it is quickly on its way east to the head of the lakes. Taking one year with another, sixty-five per cent of the grain of Manitoba, Saskatchewan and Alberta is hurried to the terminal elevators at Fort William and Port Arthur in the first four months of the grain year. The pressure on the railways is enormous from about September 12 to the second week in December, when lake navigation is closed, and when, except for the thin stream of grain that goes over the C. P. R. to St. John, all eastward movement from the head of the lakes is stopped.

It is unfortunate for the grain growers that the eastward movement of grain should stop when the last steamer has cleared from Thunder Bay; for pressure on the railways, shortage of cars, blockades of grain between Winnipeg and Fort William, and congestion of grain at the head of the lakes, tend to depress prices. It was estimated by Mr. John Kennedy, of Winnipeg, a director of the Grain Growers' Grain Company, that grain growers lost seven cents a bushel in the grain year 1913–1914, owing to the seasonal and transport conditions that govern the handling and marketing of western grain.

Exceptional conditions prevailed all through the grain year 1913–1914. These were due to the collapse of the extensive real-estate boom of 1907–1912, the industrial and commercial depression all over the Dominion that began in 1913, and the decline in immigration in the last six months of the year. As a result of these conditions, grain growers in the early weeks of the grain year 1913–1914 were pressed by their creditors—banks, mortgage companies, farm-machinery companies and store-keepers—as western grain growers had never been pressed before. The pressure caused feverish activity in the marketing of grain; and before navigation closed in December 1913, seventy per cent of the grain crop was out of the country elevators, and had either reached the head of the lakes or was on its way there. Pressure to get the crop to Fort William and Port Arthur is as old, however, as are the routes by which western grain reaches tidewater. With variations in intensity it has been continuous since the bumper crop of 1887.

The aggregate capacity of all the elevators at Fort William and Port Arthur in 1916 was 45,000,000 bushels. But the increase in grain production in Saskatchewan and Alberta has in recent years—1906–1917—been larger than the increase in the aggregate capacity of the terminal elevators. To relieve the congestion, grain has been carried in some years in bond to elevators at Duluth; and officials of the Canada Grain Commission have been temporarily established at Duluth to supervise the reception and storage of the Canadian grain, and to see it started down the lakes to Buffalo or Montreal when navigation opened in the spring. In each of the grain years from 1911–1912 to 1916–1917, moreover, large quantities of grain were stored in winter in steamers laid up in the Kaministiquia river at Fort William. In the winter of 1912–1913, 13,000,000 bushels of grain were loaded into vessels laid up in the river. In 1913–1914, the quantity so stored was 7,400,000 bushels;

and this use of idle tonnage during winter months is likely to be to a greater or less extent a permanent one; for so long as there is land in Manitoba, Saskatchewan and Alberta available for homesteads, experience suggests that elevator capacity at the head of the lakes is not likely to keep pace with the increase in the grain crop.

Manitoba wheat crops in 1888 and 1889 were much below that of 1887. The quantity of grain from Ontario and Manitoba handled by the C. P. R. in 1889 fell to 13,800,000 bushels. But another large crop came in 1890. The production of wheat in Manitoba and Assiniboia in this year was 6,630,000 bushels; and the total grain handled by the C. P. R. for the first time in the history of the pioneer transcontinental line exceeded 20,000,000 bushels. In 1888 the C. P. R. built a second elevator at Fort William. A third was added in 1889; and when the grain crop from Manitoba and Assiniboia began to reach Fort William and Port Arthur in 1890 there were four elevators of an aggregate capacity of 3,600,000 bushels at which it could be received. Extensions to the C. P. R. elevators in 1891 brought the total capacity up to four million bushels. With the exception of King's, the first elevator at Port Arthur, all the elevators in commission in 1891 were owned by the C. P. R.; and until 1902 the Canadian Pacific was the only railway company in Canada whose equipment included elevators at the head of the lakes, steamers for carrying grain to the lower lake ports of Ontario, and elevators at these ports for transferring grain from lake steamers to railway cars.

The Canadian Northern Company, now a transcontinental line, known in Canada as the Mackenzie and Mann system, was originally a Manitoba undertaking. It was not until 1902 that it connected Winnipeg with Port Arthur, which is the lake terminal of the Canadian Northern Railway, as Fort William is of the Grand Trunk Pacific Railway and the C. P. R. In 1902 there were six elevators on Thunder Bay, in addition to that of the C. N. R. They were of a total capacity of 7,000,000 bushels, and all except King's at Port Arthur were owned by the C. P. R., which had built its fifth elevator at Fort William in 1897.

In the same year the C. P. R. built a second elevator at Owen Sound of 1,000,000 bushels' capacity. Here grain from Fort William, carried in steamers too large for the canals, was transferred to cars for conveyance over the Ontario lines of the C. P. R. to Montreal or St. John. In the year 1901–1902—the first year that the C. N. R. had access to the head of the lakes—the grain handled by the C. P. R. west of Lake Superior, and in Ontario, Quebec and New Brunswick, amounted to 53,000,000 bushels, as compared with 33,000,000 in 1900–1901. The whole of the increase came from Manitoba and the Northwest Territory.

This, however, is anticipating. It was 1899 before the stream of wheat going through the elevators at Fort William and Port Arthur exceeded 10,000,000 bushels. From 1887 to 1898 the receipts of wheat at the head of the lakes varied from 2,183,350 bushels in 1888 to 9,042,800 in 1897. Receipts were short of 8,000,000 bushels in 1898. In the grain year 1899–1900, the year in which grain from what is now the province of Saskatchewan began appreciably to swell the stream from the prairie country to the head of the lakes, receipts of wheat suddenly mounted up to 26,258,710 bushels; and in 1902–1903, when the C. N. R. began to deliver grain at Port Arthur, receipts of wheat reached nearly 52,000,000 bushels. Not all of this wheat, after it had been shipped out of the elevators at Port Arthur and Fort William, was again handled by the C. P. R. or was carried by the G. T. R.; for 14,000,000 bushels of it were exported from the United States by way of the Erie canal and the railways that tap the transfer elevators at Buffalo.

The Canadian Northern has its elevator at Port Arthur. At the time it first came into service, the elevator had a capacity of 1,250,000 bushels; but by 1916, when the C. N. R. was carrying grain from 136 stations in Manitoba, 239 in Saskatchewan, and 70 in Alberta, the capacity of the Port Arthur elevator had been increased to 9,000,000 bushels. It was then the largest elevator at the head of the lakes, the largest at any grain port on the North American continent. From 1883 to 1902, all the grain that came down the lakes reached Fort William and Port Arthur over the C. P. R., which in these twenty years of the pioneer period of Manitoba, Saskatchewan and Alberta was the only trunk line west of North Bay. From 1902 to 1909 transport west of Port Arthur was divided between the C. P. R. and the C. N. R. The largest share of the grain trade in these years went, as it does today, to the C. P. R., because this railroad served the larger area of the grain-producing country. In 1916 the pioneer line was tapping country elevators at 174 stations in Manitoba, 349 in Saskatchewan, and 169 in Alberta.

The Grand Trunk Pacific, which like the C. P. R. and the C. N. R. traverses all the prairie provinces, came into the grain business at Fort William in the autumn of 1909. As part of its terminal equipment it has an elevator of 5,750,000 bushels capacity which is so designed that it can be enlarged to store 40,000,000 bushels. In 1916–17 the G. T. P. R. carried grain from 17 stations in Manitoba, 144 in Saskatchewan, and 39 in Alberta. In association with the Grand Trunk, which serves Ontario and Quebec, and owns a line from Montreal to Portland, the Grand Trunk Pacific was also operating two elevators of a combined capacity of 2,400,000 bushels in Montreal.

All the building of terminal elevators in the period from 1885 to 1902 was done by railway companies; and in 1918 of the total elevator capacity at the head of the lakes nearly one half—22,250,000 bushels—is of the terminal equipment of the three transcontinental railroads. Grain dealers and millers established elevators at Fort William and Port Arthur between 1902 and 1912; and the number of elevators at these ports stood at twenty-two when early in the grain year 1913–1914 the Canada Grain Commission—a subdivision of the department of trade and commerce that since 1912 has administered the grain code—took over a new elevator at Port Arthur of 3,500,000 bushels' capacity that had been built for the Dominion government. The building of this elevator, and its operation by the Grain Commission, is as much a landmark in the history of the grain trade as the crop of 1887. It is a landmark in the political and economic history of Canada second in importance only to the adoption of the national policy by the Conservative government of 1879, or the support by the Dominion government of the building of the C. P. R. between 1881 and 1886.

The operation of the grain elevator by the Canada Grain Commission constituted a departure in government policy. From 1896 to 1914 the railway department at Ottawa had owned transfer elevators in eastern Canada—at St. John, Halifax and Port Colborne—and the Montreal harbor commissioners had owned elevators since 1904. In western Canada the Dominion government since 1885 has exercised an increasingly close supervision of the grain trade; and since 1879 it has been the policy of the government to aid many industries by the tariff, and others with bounties and subsidies, in addition to tariff protection.

Until 1913–1914, however, the ownership and operation of country elevators in the prairie provinces and of terminal elevators at the head of the lakes had been left to private enterprise, or to the three great railway companies that since 1883 have served the grain-growing provinces. In 1911, when the Laurier government was in office, and again in 1912, after the Borden government had succeeded to power, parliament at Ottawa determined that terminal and storage elevators were public utilities, and as such should be owned and operated by the government. In pursuance of this policy, to which both parties in Dominion politics were impelled by the continuous agitation of the grain-growers' associations of Manitoba, Saskatchewan and Alberta, the Port Arthur elevator was built in 1912–1914; and in 1914 large terminal elevators were also built by the Dominion government at Port Nelson and Vancouver, and storage elevators of splendid equipment at Moose Jaw, Saskatoon and Calgary.

Briefly told, this is the history from 1883 to 1914 of the great terminal elevators at the head of the lakes, of the growth of Port Arthur and Fort William as centers of railway and harbor activity, and of the grain-handling business that gives these two cities their national and international importance in the transport world.

Grain goes down the lakes from April to December. In these nine months, when the barometer of trade in Canada is at Port Arthur and Fort William, coal and heavy freight go up the lakes. All the year round this freight from eastern Canada and from the United States is moving westward from Port Arthur and Fort William by rail—some of it to towns and villages as far inland as the foothills of the Rocky Mountains. There are seasons in the summer and autumn when coal from Ohio, Indiana and Pennsylvania is going westward at the rate of 600 car loads a day, and when grain cars are coming in over the three lines of railway from Winnipeg and other grain-inspection centers in even greater numbers.

Until 1915, when the Grand Trunk Pacific and the Canadian Northern began to run through trains from Montreal and Toronto over routes which do not touch Thunder Bay or traverse the northern shore of Lake Superior, scarcely an immigrant from eastern Canada, from the United Kingdom or from continental Europe went into western Canada by any other route than the C. P. R., or without passing through Port Arthur and Fort William. Travel to the Orient by C. P. R. steamers from Vancouver goes the same way. So does holiday tourist travel; and if tourists go by the C. P. R. steamers on the Great Lakes, it is at Port Arthur or Fort William that they disembark to continue their journey westward by rail to Alberta or British Columbia. Better than in any other city in Canada, it is possible at Port Arthur or Fort William to feel the pulse of trade—to watch the incoming of the grain trains, the outgoing steamers laden with grain, the movement of freight westward, and the tide of immigration into the four western provinces—immigration on which, since the C. P. R. first connected the Atlantic and Pacific coasts in 1886, the prosperity of the Dominion has so largely depended.

With three transcontinental railways competing for long-distance eastward and westward traffic, part of the passenger travel that from 1883 to 1914 went through Port Arthur and Fort William may go over lines that have been built over the "bridge" to the north of the pioneer line. But the principal grain and freight terminals of the three grain-growing provinces—provinces in which in 1916 there were nearly 23,000,000 acres under grain—must be at the head of the lakes. As long as so much of the prosperity of Canada depends in the last analysis on the stream of grain passing along the national route, the barometer of trade must consequently remain on the magnificent water-front at Fort William and Port Arthur.

3. The Lower Lake and Tidewater Ports

At Ontario ports on Georgian Bay, Lake Huron and the St. Lawrence at the opening of the grain year 1916–1917, there were fourteen elevators, all, with the exception of two which belonged to milling companies, transferring grain from Port Arthur or Fort William either to canal steamers or to barges for Montreal and Quebec, during the navigation season, or to the Canadian Pacific or Grand Trunk railways for transportation to Montreal, Quebec, St. John, Halifax or Portland, during the five months when the St. Lawrence is closed by ice. The following table gives their location and capacity.

Port	*No. of Elevators*	*Capacity in bushels*
Port McNicoll[1]	1	4,200,000
Collingwood	1	150,000
Depot Harbor	1	2,000,000
Midland	1	1,000,000
Tiffin	2	3,400,000
Goderich	2	1,800,000
Port Colborne	2	3,500,000
Kingston	3	1,550,000
Prescott	1	1,000,000
Totals	14	18,600,000

During navigation season grain from all these transfer ports goes by rail or by canal exclusively to Montreal or Quebec. In the twenty years that preceded the war by far the greater part of it went to Montreal; for while there was an elevator at Quebec as early as 1888—an elevator of 250,000 bushels' capacity built by the C. P. R. as part of its grain-route equipment—Quebec in 1914 handled only 1,094,000 bushels of grain, as compared with 74,000,000 bushels which went through the elevators of the harbor commissioners and the Grand Trunk at Montreal.

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[1] Owen Sound, the grain port created by the C. P. R. in 1885, has no place in this table of transfer elevators at the lower lake ports. It disappeared from the map of the national grain route in 1912, the year in which the C. P. R. removed its transfer business to Port McNicoll.

With the deepening of the St. Lawrence ship channel, Quebec gradually receded from its position as the most important port of British North America. Its pre-eminence passed to Montreal in 1886, and Quebec made no sustained effort to regain its importance on the grain route until 1913. In that year the equipment of the old elevator—now owned by the harbor commissioners—was remodeled. A pneumatic reversible conveyor, the first of the type to go into service in Canada, was also installed. Its capacity is 8,000 bushels per hour. The elevator was also equipped with reversible machinery for unloading grain from lake and canal vessels, and loading grain into ocean steamers. While these improvements were making on the old elevator, now chiefly used for handling grain *en route* for the Maritime Provinces over the Intercolonial Railway, or for stations in the Province of Quebec on the Grand Trunk and Quebec Central railways, a new elevator of 1,000,000 bushels' capacity was in building at the Louise basin. There was also added a grain-transfer boat for loading out in the harbor the larger Atlantic steamers which do not go into the Louise basin; and at the end of the St. Lawrence navigation season of 1917, Quebec ranked third among the Atlantic ports of the Dominion in elevator capacity and facilities for loading grain carriers into ocean steamers.

Elevators of great capacity designed for handling grain from lake and canal steamers, as well as grain that comes over the railway from Georgian Bay ports, and for loading ocean steamers as well as railway cars, were necessary with the new era in grain transportation at Montreal that began in 1902 when there were fourteen feet of water in the St. Lawrence canals and thirty feet in the ship channel. Confronted with the new opportunities resulting from these great and costly improvements in the national grain route, and from the great increase each year in the quantity of grain passing through the elevators at Fort William and Port Arthur, one of the problems of the harbor commissioners was the delivery of grain to ocean steamers at their regular berths. Captains and agents of steamers of transatlantic mail and passenger lines object to the cost, delay, and risk of moving a large steamer from her berth to a wharf or elevator. Tramp steamers will go to any ordinarily safe berth for a full cargo of grain; but mail and passenger steamers out of Montreal carry package freight, such as flour and cheese and canned goods, as well as grain; and if part of the cargo is to be 200,000 or 250,000 bushels of grain, the experience of Montreal, before the elevators of the Harbor Commission were built, was that this grain must go into the holds of the steamers while they were loading package freight at their regular berths.

Floating transfer elevators in the old days of the nine-foot canals met the needs of the grain trade at the port. Half a dozen of these old-timers were still in commission or in half-commission in 1918, ready to transfer occasional barge loads of grain to ocean liners that could not be placed at any one of the eighteen or nineteen berths at which grain is delivered from one or other of the two elevators now owned and operated by the harbor commissioners. Overside loading of grain, a practice at Quebec until the port was equipped with a modern elevator in 1914, is almost as much of the past at Montreal as carrying grain from railroad cars to steamers in wheelbarrows at the head of the lakes. Montreal, the most important grain seaport of the Dominion, and in 1918 the largest grain port on the North American continent, has quite outgrown the days of barges. To maintain its supremacy it is compelled to meet keener competition than any other port on the Atlantic seaboard. Insurance rates have long been a handicap. It has also one permanent handicap—a season that lasts only seven and a half months—that burdens no other large port in the English-speaking world, with the sole exception of Quebec.

For grain transport, Montreal, since the western grain route began to be developed in 1883, has had to meet the competition of New York, Philadelphia, Baltimore and Newport News. At these United States ports, in normal years, there are many more tramp steamers "going wild," as lake vesselmen describe carriers that are "gunning for charters," than there are at Montreal. Consequently from the time that thirty feet of water in the ship channel made Montreal possible for steamers of 15,000 tons, it was the aim of the harbor commissioners to instal an elevator and conveyor system much more economical and expeditious than the floating elevators, and one which would permit the delivery of grain at every berth regularly used by mail and passenger steamers.

The first of the modern elevators at Montreal designed for unloading steamers of the canal and lake fleet and railway cars, and for loading ocean steamers and railway cars, was built, not by the harbor commissioners, but by the Grand Trunk Railway Company. It was erected in 1903–1904, about the time parliament granted a charter to the Grand Trunk Pacific Company, and also large subsidies toward the construction of the Grand Trunk Pacific line from Winnipeg to Prince Rupert, and likewise authorized the government to build and lease to the G. T. P. R. the transcontinental railway from Winnipeg to Moncton, New Brunswick, where a junction is made with the Intercolonial Railway. At this time—1903–1904—no part of the grain trade west of Port Arthur originated on lines owned by the Grand Trunk. The company had no railways west of North Bay; and all the grain transport to Fort William and Port Arthur was in the hands of the C. P. R. and the C. N. R. The only part of the grain trade in which the G. T. R. was engaged was from Depot Harbor, Collingwood, Midland and other Georgian Bay ports to Montreal and Portland.

The Grand Trunk elevator at Montreal, as originally constructed, was of 1,000,000 bushels' capacity—a capacity that was increased in 1913 to 2,500,000 bushels. It is at Windmill Point, on a neck of land between the last tier of locks on the Lachine canal and the magnificent freshwater basin in which steamers from Swansea and Cardiff unload anthracite coal, where tramp steamers take on grain, and liners, tramp and lake steamers load bunker coal. The conveyor gallery at the Grand Trunk elevator is 3,000 feet long, and is designed to load two ocean steamers at the same time.

The Harbor Commission—a board created in 1830, whose members are nominated by the Dominion government—also built its first elevator in 1903–1904. It is on King Edward pier. Originally it was also of 1,000,000 bushels' capacity; but by 1912 its capacity had been increased to 2,500,000 bushels; and in 1914, further additions were made which brought it up to a capacity of 4,500,000 bushels. No. 1 elevator, as it is called by the harbor commissioners, was in use for part of the navigation season of 1904. In 1905 it handled nearly 4,500,000 bushels. The next two years—1906–1907—were disappointing for the harbor commissioners' first large venture in equipment for grain-handling. Less than a million bushels were loaded into ocean steamers from elevator no. 1 in 1906; and in 1907 the quantity was only 1,078,289 bushels. The elevator was then of 1,000,000 bushels' capacity. It had cost $1,000,000.

The charges for handling grain were three mills a bushel for elevating and weighing; three mills for twenty days' storage and delivery into steamers; and two mills for shoveling and trimming of vessels. These charges covered the handling of grain from the time the hatches of a lake carrier were removed at the marine legs of the elevators until the grain was in the hold of the ocean steamer. The charge for handling grain received in railways cars was a little less than for grain coming into the port in steamers; in part because the equipment for elevating grain from cars is in use all the year round; while the marine legs—mammoth and costly tools—are out of service from December to May. Based on these charges the total earnings of no. 1 elevator in 1907 were only $8,000. Its operation during the year entailed a loss of $40,000.

These were two critical years for grain transport at Montreal. Much was heard in Montreal of the competition of the Buffalo-New York, Philadelphia and Baltimore routes, and its drain on business that should accrue to the Canadian national route. In the winter of 1907–1908 industry and business were much depressed, and the Dominion experienced its only check of the first decade of the twentieth century. Conditions at Montreal improved after navigation opened at the end of April 1908. During that season the use of canal barges as floating grain warehouses came to an end. The old floating transfer elevators were being superseded by the marine legs, the conveyor system of the G. T. R. and the harbor commissioners' elevator; and in 1908, 8,661,356 of the 29,705,727 bushels of grain exported from Montreal went through the harbor commissioners' elevator.

The effect of the Dominion government elevator at Port Colborne in diverting grain transport from Buffalo to the national route became evident in 1909. In that year 48,000,000 bushels of wheat from Manitoba, Saskatchewan and Alberta passed through the canals at Sault Sainte Marie; of which 25,000,000 bushels were loaded into ocean steamers at Montreal. Nearly half of this quantity—11,691,071 bushels—was delivered into steamers from the harbor commissioners' elevator; and in 1910 the pressure on no. 1, on the G. T. R. elevator, and on the old-type elevators at the C. P. R. terminal at Place Viger that were in use from 1885 to 1912, was so great, and it was so evident that the pressure must continue, that the harbor commissioners began work on a second elevator at Victoria pier.

Elevator no. 2, like that at King Edward pier, is of reinforced concrete. It covers an area of 456 by 100 feet. It is in two sections. The main house has a storage capacity of 1,772,000 bushels, and the annex of 850,000 bushels. The main house, sometimes described as the working house, is 314 feet long, 100 feet wide, and under its roof, which is 244 feet above the foundations, there are 40 square bins, 86 feet deep. The annex is 142 feet long and 100 feet wide. No. 2, like no. 1 and the elevator at Windmill Point, is designed to handle grain that comes in by rail all the year round, as well as grain coming into the port from May to December by lake and canal steamers. For unloading from vessels there is a double marine tower, 250 feet high, on a pier extending out 400 feet into the basin. There are two marine legs, one on each side of the pier, each with a capacity of 20,000 bushels an hour. Two lake vessels can be unloaded at the same time. The two elevators in 1918 had a storage capacity of 6,600,000 bushels, with an aggregate unloading capacity of 1,350,000 bushels a day.

Part of the grain received at these two elevators goes out during the winter by rail to Halifax and St. John; and part of that received at the Windmill Point elevator goes by rail to Portland. Some of the grain at the harbor commissioners' elevators is for delivery to mills in the neighborhood of Montreal; and occasionally there are shipments in bags to oversea ports at which there are no elevators. But ninety per cent of the grain received at the elevators goes, in normal years, into ocean steamers for Liverpool, London, Glasgow, Bristol, Manchester, Hull, Leith, Cardiff, Dublin and Dundee, and for Antwerp, Havre, and other European ports. For loading these steamers there is an overhead-conveyor system of magnificent proportions. It is designed to serve both of the harbor commission elevators—1,000 feet apart—and from the galleries grain can be delivered at any of the nineteen loading berths at the Alexandra, King Edward, Jacques Cartier, and Victoria piers. The galleries are three miles long.

The conveyor system at the G. T. R. elevator, to which steamers go for full cargoes of grain, is much less elaborate than that which is of the equipment of the Harbor Commission elevators. At Windmill Point the elevator is parallel with the loading berth, and the conveyors deliver to only two steamers at the same time. The maximum capacity of this equipment is 350,000 bushels a day. Including the nineteen grain berths at the piers east of Windmill Point, and the canal basin, there were in 1918 twenty-one berths at which ocean grain carriers—liners or tramp steamers—could take on their cargoes from conveyor galleries. Nothing but grain is loaded at the wharf on which the Windmill Point elevator stands; but at all the berths served from the Harbor Commission elevators, package freight and lumber can be loaded simultaneously with grain. At most of the nineteen berths grain can be loaded at the rate of 15,000 bushels a minute; and there are berths at which grain can be poured into the holds of steamers at the rate of 30,000 bushels a minute.

Navigation on the St. Lawrence is seldom open longer than December 15. From then to about April 25, grain from Montreal goes by rail to Halifax, St. John and Portland by the Intercolonial, the C. P. R. and the G. T. R. Halifax is the most distant of the tidewater grain ports from the grain-growing country west of the lakes.

4. The Distribution of Elevators on the National Grain Route

There were in the grain year 1916–1917 on the four railway systems that are of the national grain route—the C. P. R., the G. T. R. and G. T. P. R., the C. N. R. and the Intercolonial—1,400 stations at which there were grain elevators of various descriptions, all worked under licenses issued by the Canada Grain Commission from its headquarters at Fort William. There were 3,360 elevators in commission; and this chain of country elevators, flat warehouses, millers' elevators, hospital or drying elevators, terminal elevators and transfer and storage elevators—with only the Collingwood link in existence previous to 1884—extended in 1918 from Halifax and St. John as far inland as Nordegg, Alberta. Nordegg is 2,746 miles from Halifax. The accompanying table shows the distribution of the 3,360 elevators that in 1916–1917 were of the equipment of the national grain route.

	Stations	*Elevators*	*Capacity, bushels*
Manitoba—			
Country Elevators	352	672	21,250,000
Interior Hospital Elevators	(2)	4	525,000
Interior Terminal Elevators	1	1	1,000,000
	353	677	22,775,000
Saskatchewan—			
Country Elevators	732	1,945	58,625,000
Interior Terminal Elevators	(2)	2	7,000,000
	732	1,947	65,625,000
Alberta—			
Country Elevators	285	670	23,106,000
Interior Hospital Elevators	(1)	2	280,000
Interior Terminal Elevators	(1)	1	2,500,000
	285	673	25,886,000
British Columbia—			
Country Elevators	6	9	527,000
Terminal and Public Elevators	(1)	2	1,266,000
	6	11	1,793,000
Ontario—			
Country Elevators	(1)	1	40,000
Milling Elevators	2	3	1,700,000
Terminal Elevators	4	13	41,750,000
Hospital Elevators	2	13	3,575,000
	8	30	47,065,000

Western Division	1,384	3,338	163,144,000
Public Elevators—			
Ontario	11	14	18,400,000
Quebec	3	5	10,000,000
New Brunswick	1	2	1,800,000
Nova Scotia	1	1	500,000
Eastern Division	16	22	30,700,000
Grand Total	1,400	3,360	193,844,000

The grain code, as the foregoing table indicates, maps the Dominion of Canada into two grand divisions. The western division, in which the Grain Commission exercises most of its various powers, and in which in 1918 it had a staff of 150 men and women, begins at Port Arthur, and extends to the Pacific coast. Port Arthur and Fort William form a subdivision of the western division. In the eastern division are all the licensed elevators in older Ontario, at Montreal and Quebec, and at Halifax and St. John. All the elevator capacity in the two divisions is in commission within two months after threshing begins in Manitoba, Saskatchewan and Alberta. Most of the equipment of the grain route is in service all the year round. The greatest pressure on it, as on the railways and lake carriers, is from September to December.

5. The Railways and Lake Tonnage of the National Route

Each grain year since 1888 has seen not only large increases in the elevator capacity of the railway companies, but also enormous increases in the equipment used in carrying the grain to the head of the lakes, and from the transfer ports in older Ontario to the seaboard. All three companies carrying grain from country elevators west of Winnipeg to Fort William or Port Arthur, when the grain year opens in September, press every available locomotive and box-car into service and add considerably to their working forces. At the beginning of the grain year 1913–1914—the last normal year in the Canadian grain trade—the C. P. R., which had then a little over 7,000 miles of main and branch lines in its Manitoba, Saskatchewan and Alberta divisions, assigned to grain transport west of the Great Lakes, 1,171 locomotives and 40,000 box cars—nearly half the total number of cars then in use on a system that extends from Vancouver to St. John, and of which the total mileage in 1914 was 13,280 miles. The C. N. R., which extended its lines to Port Arthur in 1902, had in 1913–1914 535 locomotives and 18,403 box-cars in the western grain service; and from September 1913 to the end of July 1914, one month less than the grain year, it delivered to flour mills in the prairie provinces 4,491,000 bushels of grain, to elevators at Fort William and Port Arthur 58,187,000 bushels, and at Duluth 5,056,000 bushels.

The Grand Trunk Pacific was the last of the railways to come into the grain-transport business west of the lakes. There were in the grain year 1913–1914, 252 country elevators on its lines west of Winnipeg; and when grain from the threshers began to reach these elevators in September 1913, and to pour into them continuously until navigation opened in May 1914, the G. T. P. R. had 240 locomotives and 8,500 cars available for the grain-carrying service to the head of the lakes.

The total equipment of the C. P. R., C. N. R. and G. T. P. R. used in handling the grain crop of 1913 was 1,946 locomotives and 66,900 box-cars. Not all these locomotives can be taken as representing grain trains. Some are in service continuously as switching engines at the larger railway centers, at which trains are marshaled and sent out to Winnipeg, and thence to the head of the lakes. Five men make up a switching crew—engineer, fireman, yard foreman and two switchmen. The crew of a grain train also consists of five men—engineer, fireman, conductor and two brakemen. Hence in the country west of Port Arthur, an army of nearly 10,000 well-paid men, the pick of the wage-earning classes as regards age and physique, intelligence and reliability, is employed for a large part of the year in moving the crop from the country elevators to the terminal elevators at Port Arthur, Fort William and Duluth.

All the grain that is not retained for seed or used at the 128 flour mills in the prairie provinces and British Columbia, passes through Winnipeg on its way to the seaboard or to the flour mills in Ontario and at Montreal. The only inspection station at which the certificates of the Grain Commission were issued in 1916–1917 were Calgary, Moose Jaw, Winnipeg, Fort William and Port Arthur. Most of the inspection is done at Winnipeg. The greatest pressure there comes in September, October and November. In the autumn of 1914 the press of work was greater than in any year in the history of the grain commission. For the three months—September, October and November 1914—the average number of cars inspected per hour was fifty-three. Inspectors were on duty seven days a week and twenty-four hours a day.

In addition to the army of 10,000 men engaged in transporting grain from the country elevators, and 3,000 men at work in these elevators in the prairie provinces, still another small army of men is employed at Fort William and Port Arthur in work incidental to the growing and transport of the western grain crop. These men are employed in marshaling the loaded cars at the elevators, in spotting, or placing cars at the elevators, in unloading into the hoppers, in transferring the grain from bin to bin to keep it in condition, in weighing the grain, in trimming it as it is delivered through the chutes into the holds of the lake carriers, and in loading the empty cars with freight that the grain steamers have carried up the lakes on their return trips from Montreal or the lower lake ports.

Much of this work is going on all the year round, for after navigation closes grain continues to come in for storage in the elevators or in steamers used as floating warehouses. But pressure on lake transport, as on the railways, is greatest from the second week in September to the close of navigation.

American vessels are more numerous in the grain fleet working up and down the lakes than vessels on the British or Canadian register. In the navigation season of 1911, 126 American steamers took cargoes at Port Arthur and Fort William, as compared with ninety vessels flying the British flag. The proportions were somewhat similar in the navigation season of 1913; for out of the 112,000,000 bushels of grain shipped from the head of the lakes in October, November and December of that year, 43,000,000 went down the lakes in Canadian vessels, and 69,000,000 in steamers on the lake register of the United States. Canadian vessels taking cargoes in these months numbered eighty-eight. American vessels numbered 161. The Dominion navigation code does not permit American vessels to carry grain or any other cargo from Port Arthur or Fort William to Canadian ports; and between 1884 and 1911, the law was only twice suspended. No grain from Port Arthur and Fort William goes in normal years to the transfer ports in older Ontario or through the Welland and St. Lawrence canals to Montreal or Quebec in American steamers. The cargoes taken by these steamers at the elevators at Port Arthur and Fort William are for Buffalo, Oswego and other Lake Erie ports in the United States, from which the grain is carried by rail or canal to the American seaboard.

With the exception of Prince Edward Island, every province east of the Great Lakes shares in the work of moving the western grain crop, but owing to the fact that so many of the transfer ports are in Ontario, the greater part of the work falls to the central province. A little grain is produced in the country that lies between the western boundary of Ontario and Winnipeg, sixty miles west of the Lake of the Woods. The nearest railway station to the head of the lakes at which there are country elevators is Whitemouth, on the C. P. R., fifty miles east of Winnipeg, and 390 miles from Port Arthur. In all three provinces there are country elevators quite near to the international boundary line that divides Manitoba, Saskatchewan and Alberta from Minnesota, North Dakota and Montana. Prince Albert in Saskatchewan, and Nordegg in Alberta, both on the C. N. R., are the most northerly towns in the vast grain-growing area at which in 1916 there were elevators. Nordegg was then also the most westerly town from which grain was shipped over the national route. It is 1,475 miles from Port Arthur, and 2,951 from St. John; so that at some seasons of the year western grain is moving to tidewater over an all-Canadian route that is nearly three thousand miles long.

In addition to Port Arthur and Fort William there are in Ontario nine ports at which western grain is transferred either to barges or steamers of canal size or to railway cars for conveyance to the seaboard. With the exception of Port McNicoll, the new grain depot of the C. P. R., and Port Colborne, where the department of railways has one of its three elevators, the grain business at these Ontario ports was developed between 1885 and 1900, when there were only nine feet of water in the Welland and St. Lawrence canals.

Collingwood is the oldest of the Georgian Bay transfer ports. There have been elevators there since 1871. It was a transfer port in the days when grain from Minnesota and Dakota was carried from Duluth and Chicago to Ogdensburg by Canadian transport companies. Owen Sound was the first Ontario port on Georgian Bay to be developed by the western Canadian grain trade. It became a grain port in 1886, when the capacity of all the elevators at the head of the lakes did not exceed, 2,000,000 bushels, and when as yet grain transport west of the lakes, so far as the railways were concerned, was exclusively in the hands of the C. P. R. An elevator of 350,000 bushels' capacity was built by the C. P. R. at Owen Sound, which went into commission in the grain year 1885-1886. A second elevator of 1,000,000 bushels' capacity was built by the same company in 1897; and from 1886 to 1912 Owen Sound was the most important grain port in Ontario east of Lake Superior, and from it, after 1896, grain was carried all the year round by rail to Montreal and St. John. Port McNicoll, also on Georgian Bay, was created by the C. P. R. in 1910-1912. It affords a shorter and otherwise more economical route to Montreal than the Owen Sound route; and at Port McNicoll—named after Mr. D. McNicoll, vice-president of the C. P. R. from 1903 to 1914—there is now the largest elevator east of Port Arthur. It is of 4,200,000 bushels' capacity. Through it passes a large proportion of the western grain that reaches the United Kingdom by way of Montreal, Quebec, Halifax or St. John.

The Grand Trunk Railway was incorporated in 1853; and the Grand Trunk lines or lines that are now of the Grand Trunk system, were handling grain and flour for export long before 1883, when grain from Manitoba began to be a factor in the export trade of the Dominion. Grain shipped from Chicago over the old Collingwood-Toronto-Ogdensburg route went from Collingwood to Toronto over the line that is now part of the Grank Trunk System. Sarnia, on the St. Clair River, in the early days of the Grand Trunk, was also a port at which there was a large grain business. It was not, however, until 1897 that the Grand Trunk got well into the western grain business, and began carrying large quantities of wheat and oats to the seaboard from transfer elevators at Depot Harbor, Midland, Collingwood, Owen Sound, Goderich and other ports on Georgian Bay and Lake Huron, and from Port Colborne on Lake Erie.

To all these Ontario ports grain comes down the lakes from Port Arthur and Fort William in steamers too large for the Welland and St. Lawrence canals. In summer and autumn when navigation on the Great Lakes and the St. Lawrence is open, western grain from the transfer elevators at these ports is carried over the Grand Trunk to Montreal, to the Grand Trunk elevator at Windmill Point. After navigation is closed in December it goes from Montreal by the Grand Trunk line to Portland, which is 300 miles from Montreal, and 1,776 from the head of the lakes. Portland has been a shipping point for Canadian grain from at least as early as 1872, when the Grand Trunk built an elevator of 140,000 bushels' capacity on Galt wharf. This is the smallest terminal elevator of the equipment of the Canadian grain route. But when it went into service the population of the Dominion was not more than 3,500,000. There were then not more than 60,000 people in what are now the grain-growing provinces; only 36,000,000 acres of land in the Dominion were occupied; and Ontario was the only province exporting grain and flour. The only public terminal or transfer elevator in Canada at this time—1872—was that at Collingwood; and in the decade after Confederation in 1867, grain exports from the Dominion never exceeded 21,000,000 bushels.

The Grand Trunk elevator at Portland sufficed until 1897, the year when the company began carrying Manitoba grain from Georgian Bay ports to Montreal and Portland. A second elevator of 1,000,000 bushels' capacity was built in that year, and in 1902—when the exports of grain from Canada reached 35,000,000 bushels—the old elevator was replaced by one which has a storage capacity of 1,250,000 bushels. No wheat for export is grown in Maine, or in any other New England state.

The elevators of the Grand Trunk are the only elevators at Portland; and the importance of Portland as a grain port dates only from 1897, when the second Grand Trunk elevator there went into commission. In 1914, 11,500,000 bushels of Canadian grain were exported from Portland. Ninety-five per cent of it was from the provinces west of the Great Lakes, and was shipped from Port Arthur and Fort William to Georgian Bay ports in Ontario, and carried thence over the Grand Trunk to Portland.

6. Competition of American Ports for the Canadian Grain Trade

Thirteen years before a single bushel of Manitoba wheat had come down the lakes from Port Arthur, it was foreseen in Toronto and Montreal that as soon as Manitoba and the Northwest Territory began to be developed, the route from Port Arthur—then known as Prince Arthur's Landing—to Buffalo and thence to New York, must be a strong, persistent and successful competitor with the route through the Welland canal to Montreal and Quebec. Wheat and corn had been going from Chicago and Duluth to Buffalo from the time Illinois and Minnesota began to export wheat; and for transfer business Buffalo was the best equipped of all the lower lake ports.

The canals and lake and tidewater ports of Ontario, Quebec, New Brunswick and Novia Scotia were the subject in the autumn of 1870 of an exhaustive inquiry by a royal commission appointed by the government of Sir John A. Macdonald. The late Sir Hugh Allan of Montreal, the foremost Canadian authority of his day on canal and ocean transport, was chairman of the commission; and its report, dated February 24, 1871, affords more detailed first-hand information concerning the domestic and external commerce of Canada—its grain and flour trade, its lumber and coal industries, and its transportation equipment in the first decade of the Dominion—than any other examination of these conditions at that time or later which has yet been published.

As soon after Confederation as 1870 there were far-seeing men in the grain and fowarding business at Montreal and

Toronto who realized, not to the full, but with some measure of completeness, the possibilities of the vast territory that Canada had acquired from the Hudson Bay Company in 1869. These men, who were of the grain and transport business in the days of small things, when the largest elevator on the grain route had a capacity of no more than 100,000 bushels, when a lake steamer of 400 tons was regarded as a large vessel, realized the possibilities of the country beyond the Great Lakes for the Dominion and for the empire, although in 1870 this word was not yet of the language in the sense in which it is now applied to Great Britian and her colonies and oversea dominions.

These men submitted their views to the Allan Commission—a commission that took the first steps toward the development of the national grain route. It was, in fact, the Allan Commission that gave the name of " the national grain route " to the route by which the products of Manitoba, Saskatchewan and Alberta reach the Atlantic seaboard from Port Arthur and Fort William. The purpose of the commission is to be found in the terms of the reference. It was instructed to recommend "a thorough and comprehensive improvement of the canal system on such a scale, of such a character, as would best tend to afford ample facilities for the expansion and due development of the growing trade and commerce of the Dominion." The existence of a competing route—via Buffalo and New York—was conceded in the reference, in a paragraph in which the commission was instructed to

> consider the whole subject in all its bearings, as well in a commercial as in an engineering point of view, with the object of obtaining such reliable information thereupon as may furnish the data on which to base a plan for the improvement of the canal system of the Dominion of a comprehensive character, and such as will enable Canada to compete successfully for the transit trade of the great western country.

The commission recommended the further deepening of the ship channel from Quebec to Montreal; the construction of a canal at Sault Sainte Marie to free the Dominion from dependance on the American canal and lock; and the the enlargement of the Welland and St. Lawrence canals, urging as regards these canals that there should be fourteen feet of water in all of them, and that the locks should be of uniform size.

The investigations of the commission covered the entire canal and port system of Canada. In view of the population and developed resources of the Dominion in 1870–71 the recommendations of the commission were remarkably bold; for the commissioners urged an estimated expenditure of $19,170,000 on improvements and new works. On improvements to the canals and waterways of what is now the national grain route. they recommended an expenditure of $12,250,000; for the new canal at Sault Sainte Marie, $500,000; enlargement of the Welland canal, $6,550,000; enlargement of the St. Lawrence canals, $4,500,000; and deepening of the ship channel from Quebec to Montreal, $800,000.

Not all the improvements recommended were at once undertaken. An immediate outlay of $20,000,000 was not possible in 1871. Canada, with its small population, was then beginning to face the task of building the Intercolonial—the government-owned railway that connects St. John and Halifax with Montreal; and by the terms on which British Columbia had come into confederation the Dominion was also committed to the much more costly undertaking of connecting Montreal by railway with the Pacific coast. Work was begun on the St. Lawrence canals in 1873, but some of the improvements were not undertaken until seventeen or eighteen years after the Allan Commission formulated its plan. It was 1895 before there was a Canadian canal at Sault Sainte Marie. It was 1901 before there were fourteen-foot waterways through the Welland and St. Lawrence canals; and 1902 before there was a uniform depth of thirty feet in the ship channel from Quebec to Montreal. The years of greatest expenditures on the national grain route were from 1885 to 1902. In this period of seventeen years the canal and locks at Sault Sainte Marie were constructed at a cost of nearly $5,000,000; the Soulanges canal was built at a cost of $7,696,000; and in these years the St. Lawrence canals and the ship channel of the St. Lawrence were all deepened.

7. *Expenditures on the National Route Since Confederation*

The year preceding the war saw the beginning of another improvement to the Welland canal—an improvement that is to make the canal available for the largest steamers on the lakes; and before a beginning was made on this work in the summer of 1914—work that is to cost $32,000,000—there had already been expended on the inland waterways of the Dominion $105,000,000. By far the greater part of this vast expenditure was on the canals of the national grain route. Between Confederation and the war, $56,000,000 had been spent on the canals; and this amount did not include the money spent in the same period on the ship channel from Quebec to Montreal, on harbor improvements at lake and tidewater points on the grain route, on dry docks, and on government elevators at Halifax, Montreal and Port Colborne, all built since 1896; and west of Sault Sainte Marie on elevators at Port Arthur and Moose Jaw and other cities in Canada beyond the Great Lakes, at which since 1912 the Dominion government has been embarked in the business of handling and storing grain.

In the last years of this period from 1867 to 1914, proof was forthcoming that this great expenditure on improving and developing the national grain route had been wisely made—(1) in the place taken by Montreal in the navigation season of 1914 among the grain ports of the entire Atlantic seaboard, and (2) in the fact that in this year 74,000,000 bushels of Canadian and American grain were exported from the port. In the fiscal year 1868–1869, the year before the Royal Commission on the Dominion Canals made its report and recommended the policy that has since been followed by both Conservative and Liberal governments, the total exports of grain from the Dominion were a little short of 9,250,000 bushels, and of this quantity were the wheat and maize from the United States that went from St. Lawrence ports, and 4,500,000 bushels of barley from Ontario and Quebec that went to the United States.

Since canal tolls were abolished in 1901, interest on loans for the canals and the repayment of loans have been a charge on the people of the Dominion. Except for the excess-profits tax—a war measure adopted in 1916—and an income tax imposed in 1917, the Dominion government levies no direct taxation. But either through the tariff, or through internal-revenue imposts on liquor and tobacco, every Canadian contributes his quota to the cost of the national grain route. In the years before the development of Canada beyond the Great Lakes, when the stream of immigration diffused itself chiefly over Ontario, and when only the grain of Ontario and of the western states was carried over the national grain route, it was a complaint with the Maritime Provinces—provinces that were then quite stagnant—that they derived no advantage from the expenditures on the canals in Quebec and Ontario.

Not much was heard of this complaint after 1896, when grain began to be exported from St. John. It had died away before the opening of the new century; for from 1884, when wheat from Manitoba first flowed into the stream of grain for export, progress in many industries in Canada besides those directly connected with grain growing and grain transport, depended on grain growing and grain handling in its varied forms. The sugar refineries of Halifax and Montreal, the coal mines of Nova Scotia and British Columbia, the saw mills of British Columbia, Ontario, Quebec and New Brunswick, the cotton mills of St. John, Halifax, Montreal, Valleyfield, Cornwall and Hamilton, the ready-made-clothing industries of Toronto, Hamilton and Montreal, were all largely dependent on the extension of the area under grain in the prairie provinces. The same is true of the railway and shipping companies, of the stock exchanges of Montreal and Toronto, and of the banking houses of the three great financial centers of the Dominion—Halifax, Montreal and Toronto. It is, indeed, no exaggeration to say that today there is scarcely a retail store from Vancouver to Halifax the volume of whose trade is not directly or indirectly affected by an increase in the trade of the national grain route.

It is not maintained that the deepening of the St. Lawrence and Welland canals and of the ship channel to Montreal, the construction of a canal and a lock at Sault Sainte Marie, and the provision of first-class elevator and dry-dock facilities, have achieved all that was expected at the time a beginning was made with these costly works. Such a claim cannot be made in view of the fact that in the navigation season of 1917 93,000,000 bushels of wheat and oats from the prairie provinces reached the Atlantic seaboard by way of Buffalo as compared with 103,000,000 bushels of wheat and oats that went over the national grain route to mills in Ontario or to the Atlantic seaboard of the Dominion. But what has been achieved since 1884 fully justifies the policy in regard to the national grain route that has been pursued at Ottawa since 1873. It is a loss to Canada that so much of the grain trade is diverted to Buffalo. It is a loss that is continually regretted, especially at Montreal and Quebec. But no action by the government at Ottawa that has so far ever been suggested could have overcome the difficulties Montreal, Quebec and St. John are confronted with, from the fact that the larger and more varied trade at ports in the United States from Boston to Newport News attract a larger number of steamers than are attracted to Canadian ports, and in particular a larger number of steamers of the class that are adapted to the transport of grain.

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